

## PATENT ABSTRACTS OF JAPAN

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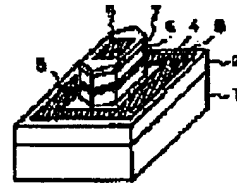
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### (54) NITRIDE III-V COMPOUND SEMICONDUCTOR LIGHT EMITTING DEVICE AND ITS MANUFACTURE

#### (57)Abstract:

**PROBLEM TO BE SOLVED:** To improve the current-light output characteristic of a nitride III-V compound semiconductor light emitting device when the laser of the element is oscillated and, at the same time, to reduce the threshold current by forming a nitride III-V compound multilayer semiconductor light emitting device into a hexagonal prism and using the two parallel surfaces of the hexagonal prism as resonator surfaces.

**SOLUTION:** A hexagonal prism-like laser is formed in such a way that, after a conductive GaN single-crystal thin film 2 is grown on a substrate 1 with a buffer layer in between, an SiO<sub>2</sub> film 3 is deposited on the thin film 2 and hexagonal windows are lithographically formed through the film 3 by applying a resist to the film 3. Then the SiO<sub>2</sub> film 3 is partially etched off to the thin film 2 and the resist is removed. After the resist is removed, a conductive AlGaIn clad layer 4 is grown in each window section and an undoped InGa active layer 5, a conductive AlGaIn clad layer 6, a conductive GaN contact layer 7 are successively grown on the clad layer 4 and electrodes 8 and 9 are formed. Since the two parallel resonator surfaces of the hexagonal prism structure have flatness of an atomic order, the occurrence of light losses can be reduced.



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